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| **Lesson Title: Stars, Glaxies and Universe Literacy Strategies** |
| **Subject area / course / grade level: Science/Sixth Grade** |
| **Introduction:**  Tour the UniverseTour the Universe by Frank Summers  What is your address?   An address is basically a listing of where you live in terms of house, street, city, state, and country. We can identify each of these places on a map to find out where we live relative to other places. Knowing some geography, you can locate anyone in the world using their address.   If you go beyond the basics, your address can continue. We live on the planet Earth. Earth is one of the planets orbiting a star called the Sun. The Sun is one of a couple hundred billion stars within the Milky Way Galaxy. But what's after that? What is beyond planet, star, and galaxy? What is the geography of the universe? |
| **Lesson Length: 50 minutes** |
| **Materials: Large poster paper, masking tape, textbooks** |
| **Lesson Overview: Students will fill out large butcher block paper concept definitions of their Stars, Galaxies and the Universe vocabulary.** |
| **Tennessee Standards:**  **GLE 0607.6.1** Analyze information about the major components of the universe. |
| **Lesson objective(s):**  Understand the definitions and relationships between: Star, Sun, galaxy, nebula, quasar, black hole, supernova, neutron star. |
| **ENGAGEMENT**  Using PBS NOVA interactive website: Tour the Universe, students will write their enlarged address which includes where they are in the universe. |
| **EXPLORATION**  **CD Word Maps** (concept development for fundamental vocabulary, student talk to hypothesize) (concepts: Star, galaxy, nebula, quasar, black hole, supernova, neutron star, H-R Diagram) |
| **EXPLANATION**  **CONCEPT OF DEFINITION (CD) WORD MAPS**  The idea is that vocabulary is much more than a memorized dictionary definition. Vocabulary understanding requires a rich concept of the word with its many nuances of meaning. The CD Word Map enables meaning according to various properties.     * Category - What Is It? * Properties - What Is It Like? * Illustrations - What Are Some Examples? * Nearly - It is almost, but not quite….   It IS….  The Concept  It is like….  Example 4:  Example 3:  Example 2:  It is almost, but not quite…  It is like….  It is like….  Example 1:  Students will be put in groups of 4. The groups will rotate through the concept definitions templates that have been drawn on butcher block paper that have been taped to the walls of the room. Each group, using a different color marker, will have 2 minutes to fill out the concept definition parts and move on to the next CD. They are not allowed to fill out the “definition” at the top of the CD until all other parts have been filled out. This causes them to think about the use of the words and the relationships between the words BEFORE falling back upon their knowledge of the textbook definitions. Students are allowed to use their textbooks when they cannot find answers to the CD by their prior knowledge or they need to settle disagreements about concepts. |
| **ELABORATION**  Before the lesson, the text about Stars, Galaxies and Universe will have been read and the following vocabulary will have been taught by whole brain methods called “shake and bake.” In addition, students will have created cartoon vocabulary for each of the following words:  Star, galaxy, nebula, quasar, black hole, supernova, neutron star, H-R Diagram. |
| **EVALUATION**   * Students will fill out the following as their “ticket out”:   + Types of stars include:   + Most stars are …. on the H-R diagram   + Massive stars become \_\_\_\_\_\_\_. Their cores can change into neutron stars or \_\_\_\_\_\_ \_\_\_\_\_\_\_\_.   + The color of a star determines it’s \_\_\_\_\_\_\_\_. Blue stars are \_\_\_\_\_\_ and Red stars are \_\_\_\_\_\_\_.   + Scientists classify stars by their \_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_.   + Nebulas and star clusters exist in some \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.   + Nebulas are:   + Galaxies are classified by their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   + Three types of galaxies are:   [**http://www.pbs.org/wgbh/nova/universe/tour.html**](http://www.pbs.org/wgbh/nova/universe/tour.html) |